

Little Brown Bat Nest Box Plans

Myotis lucifugus

The Little Brown Bat is a backyard hero, consuming up to a thousand mosquitoes every hour to fuel its high-energy flight. Building a dedicated bat house provides a critical refuge for this endangered species while offering you a front-row seat to their spectacular dusk emergences.

Nest Box Specifications

Entrance hole	0.75 inch (19 mm) bottom slot
Floor dimensions	11.25 x 0.75 inches (286 x 19 mm) internal chamber
Interior depth	20 inches (508 mm)
Mount height	12-20 feet (3.6-6.1 m) above ground
Facing direction	South or Southeast to ensure 6-8 hours of direct daily sunlight for pup warmth.

Mount on a pole or the side of a building to avoid shade and predator access from tree branches. Ensure the house is within 1,500 feet of a water source like a pond or stream and at least 20 feet from the nearest tree canopy.

Cut List

From a 1x12 x 8 ft

Panel	Dimensions	Qty	Notes
Back	11.25" x 30"	1	Score horizontal grooves every 1/2 inch to provide a grip for bats; bottom 10 inches serves as a landing strip.
Front	11.25" x 20"	1	Score the interior side horizontally; leave a 1/2 inch gap near the bottom for ventilation.
Side	1.50" x 20"	2	These act as spacers between the front and back to create the 0.75 inch roosting chamber.
Roof	11.25" x 6"	1	Angle the top edges of the front and sides 15 degrees for a sloped, rain-shedding roof.

Floor	11.25" x 1"	1	Attach as a bottom reinforcement slat across the front, leaving the 0.75 inch entrance slot open.
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All panels are cut from the 1x12 board. The two 1.5-inch side spacers are ripped from the remaining length after the front and back are cut. Horizontal scoring for grip is essential on all interior surfaces.

Materials & Construction

Wood: 3/4-inch (19 mm) untreated cedar or rough-sawn plywood. Never use pressure-treated wood.

Boards: A single 1" x 12" x 8' untreated cedar board provides enough material for the house and internal spacers.

Hardware: 25x 1-5/8" galvanized deck screws, 1x quart dark water-based exterior stain, 1x tube exterior-grade non-toxic caulk, 2x 3" lag bolts for mounting, 1x roll 1/8" plastic bird netting (optional alternative to scoring)

Ventilation: Leave a 1/2-inch horizontal gap between the front panel and the bottom reinforcement slat to allow airflow.

Drainage: The bottom is an open slot, so water naturally sheds; ensure the roof joints are caulked to prevent leaks.

Predator guard: Mount the house at least 12 feet high on a smooth metal pole or a flat building surface to prevent cats and raccoons from reaching the entrance. Avoid mounting on trees, as branches provide easy perches for owls and climbing paths for snakes.

Materials Checklist

- 1x 1" x 12" x 8' untreated cedar board
- 25x 1-5/8" galvanized deck screws
- 1x quart dark water-based exterior stain
- Non-toxic exterior wood glue
- Exterior-grade caulk
- 80-grit sandpaper
- Measuring tape and pencil
- Hand saw or circular saw
- Drill with 1/8" and 1/4" bits
- Chisel or saw for scoring horizontal grooves
- 2x 3" lag bolts for mounting

Ladder (for 12'+ installation)

Seasonal Timeline

Install: Install in late winter or very early spring, before the bats emerge from hibernation in March or April.

Nesting start: Maternity colonies typically form in April in the Midwest and Northeast. In the Northwest and West, bats may begin occupying roosts as early as March depending on local temperatures.

Clutch size: 1 pup (usually born in June)

Incubation: 50-60 days (gestation)

Fledging: 3-4 weeks after birth

Cleaning: Unlike bird boxes, bat houses do not need annual cleaning. Guano falls out the bottom, and bats prefer the seasoned scent of an established roost.

Regional Considerations

The Little Brown Bat is found throughout most of North America, from the subarctic regions of Canada and Alaska down through the United States to the high-elevation forests of the Southwest.

Roosting begins earlier in warmer coastal climates and later in high-altitude mountain ranges or the far North. Early spring warmth is the primary trigger for bats moving from hibernacula to summer maternity boxes.

The main threats are Great Horned Owls at the entrance and raccoons climbing from below. High mounting heights and smooth pole surfaces are the best defenses against these threats.

Camera Placement

Because Little Brown Bats are nocturnal and highly sensitive to light, interior monitoring requires a high-quality infrared (IR) camera with no visible 'red glow' LEDs. Mount a small, flat-profile USB camera at the very bottom of the chamber, looking straight up. This provides a clear view of the maternity cluster and growing pups clinging to the ceiling without disturbing their sleep cycle.

For exterior observation, a wide-angle outdoor camera should be positioned 4 to 6 feet directly below the bottom entrance slot. This is the best way to capture the spectacular 'emergence' at dusk when bats drop into the air to hunt. Using a camera with a high frame rate will help capture the fast-moving bats clearly as they exit.

Route all camera cables tightly along the exterior of the house and down the mounting pole using weatherproof clips. It is vital that no loose wires are inside the chamber, as bats can easily become entangled. For AI-powered counting, ensure the camera's motion zone is focused on the bottom 6 inches of the landing strip.

A dedicated trail camera or an outdoor security camera like a Blink can be mounted on a nearby structure to monitor the perimeter for predators. This secondary view helps you identify if owls or climbing mammals are showing interest in the colony, allowing you to adjust predator guards if necessary.

Powering with a USB solar panel

Mount a 5V USB solar panel with a built-in battery 1-2 ft above the box on the same post, angled 30-45 degrees from vertical and facing south. Run the USB cable down the post inside split loom conduit (squirrels will chew unshielded wire), enter the box through the same grommeted hole as the camera cable, and seal with exterior silicone. Choose a panel with a 5-10 Ah battery buffer so the camera runs through cloudy days.

Common Problems & Solutions

Bats not using the box: Ensure the box receives at least 6 hours of sun; move it to a location with better solar exposure if it remains empty for two seasons.

Wasps building nests inside: The 0.75-inch slot width is designed to deter most birds and larger wasps, but if they persist, ensure the interior is rough but clean of old mud.

House getting too hot: In very hot climates, add a second ventilation slot or paint the house a lighter shade of brown rather than black.

Wood warping or splitting: Use exterior-grade caulk on all joints during assembly and apply a high-quality water-based stain to the exterior only.

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